

**COURSE TITLE\*:** SUPPORT SUBJECT 2: BUILDING COMFORT ASSESSMENT AND ENERGY DIAGNOSIS (Topic: Architecture, Environment, and Technologies)

**CODE\*:** UEF 3                      **CREDIT\*:** 3                      **Coefficient\*:** 2

**WEEKLY TIMETABLE:** 3 HOURS

**TOTAL SEMESTERLY COURSE DURATION (in number of weeks)\*:** 45 HOURS

**COURSE LANGUAGE:** Hybrid (French/English)

**LECTURER [TEACHER and ASSISTANT(S)]\*:**

- **Lecture by:** Ms. DJEBBAR Khadidja El-Bahdja

- **Tutorials by:** Mr. MAACHOU Omar and Mr. BABA AHMED Ismain

#### **GENERAL COURSE OBJECTIVE\*:**

Introduction to and acquisition of basic concepts regarding the conceptual, methodological, and logistical tools required to establish diagnostics related to the topic.

#### **LEARNING OBJECTIVES\*:**

This course focuses on the methods, techniques, and use of tools used to construct diagnostics and help develop decision-making options:

- Introduction to assessment and diagnostic methods;
- Introduction to simulation and modeling software.

#### **DESCRIPTION AND STRUCTURE:**

##### **PROGRAM of SUPPORT SUBJECT 2: BUILDING COMFORT ASSESSMENT AND ENERGY DIAGNOSIS**

N°	DATE	Course Title	Tutorials
01	Monday 30/09/2024	<b>Introductory course: Program of the subject</b>	/
02	Monday 07/10/2024	<b>Chapter I: Climate and climate design</b>	/
03	Monday 14/10/2024	<b>Chapter II : Concept of comfort</b>	/
04	Monday 21/10/2024	<b>Chapter III : Thermal Comfort Assessment</b>	T1
05	Monday 28/10/2024	<b>Chapter III : Thermal Comfort Assessment</b>	T2
06	Monday 02/11/2024	<b>Chapter IV : Spatial Thermal Comfort Design Strategies</b>	T3
07	Monday 09/11/2024	<b>Chapter IV : Spatial Thermal Comfort Design</b>	T4

#### **BIBLIOGRAPHICAL RESOURCES\***

- Association européenne de fabricant de laines minérales, www.eurima.org
- Baltus C, Guillemeau J.-M., La ventilation mécanique, guide pratique pour les installateurs de techniques spéciales, DGTRE et FFC, Bruxelles, 2004.
- Gilles Bellin Pierre, L'habitat bioéconomique : isolation- -chauffage-électricité-eau, éditions Eyrolles, 2008.
- Gonzalo-Habermann, Architecture et efficacité énergétique, éditions Birkhäuser, 2008.
- Claude Aubert, Maisons écologiques d'aujourd'hui, Terre vivante, 2002.
- Dimitris Kottas, Matériaux - Impact et innovation, Links, 2011.
- Dominique Pipard et Jean-Pierre Gualazzi, La Lutte contre le bruit, LE MONITEUR, 2002
- Dominique Gauzin-Müller, Architecture écologique, LE MONITEUR, 2001.
- Nelly Olin, Construire ou rénover en respectant la Haute Qualité Environnementale, EYROLLES, 2006.
- DJEBBAR K.E.-B., Approche multi-objectif d'optimisation de la performance énergétique et environnementale de l'habitat en Algérie par techniques solaires passives – un pas vers la durabilité : Cas d'étude les immeubles collectifs à Tlemcen, Thèse de doctorat, Spécialité: Énergétique du bâtiment, Département d'Architecture, Faculté de Technologie, Université Abou Bakr BELKAID, Tlemcen, 2018.
- Djebbar, K.E.-B., Salem, S. and Mokhtari, A. (2018a), "A multi-objective optimization approach of housing in Algeria. A step towards sustainability", Urbanism Arhitectura Constructii, Vol. 9 No. 2, pp. 131-158.
- Djebbar K.E.-B. (2018b), « Ksours in Algeria : Lessons of environmental performance for a more sustainable futur », International Journal of Human Settlements Vol. 2 No. 3, pp. 32-51.
- Djebbar, K.E.-B., Salem, S. and Mokhtari, A. (2020a), "Assessment of energy performance using bottom-up method exemplified by multi-storey buildings in Tlemcen (Algeria)", International Journal of Building Pathology and Adaptation, Vol. 38 No. 1, pp. 192-216, doi: 10.1108/IJBPA-11-2017-0056
- Djebbar, K.E.-B., Salem, S. and Mokhtari, A. (2020b), "Developing multi-storey building archetypes as key tool in energy performance assessment", International Journal of Human Settlements, Vol. 4 No. 1, pp. 24-46.

#### **COURSE ORGANIZATION AND OPERATING PRINCIPLES\***

Lectures and tutorials are structured according to the specifics of each chapter. Some are more theoretical, while others are more practical, requiring practical applications. In

		<i>Strategies</i>	
08	Monday 16/11/2024	<b>Chapter V : Assessment of the energy and environmental performance of buildings</b>	T5
09	Monday 23/11/2024	<b>Chapter VI : Method and tools for evaluating the energy performance of your building</b>	T6
10	Monday 30/11/2024	<b>Chapter IX : Acoustic Comfort Assessment</b>	T7
11	Monday 07/12/2024	<b>Chapter X : Assessment of Visual Comfort and Natural Lighting 1</b>	T8
12	Monday 14/12/2024	<b>Chapter X : Assessment of Visual Comfort and Natural Lighting 2</b>	T9
	Thursday 19 /12/2024	<i>Winter holidays</i>	
	Saturday 04/01/2025		
13	Monday 06/01/2025	<b>Chapter XI: Assessment of Olfactory Comfort and Air Quality</b>	T10
	Tuesday 13/01/2025	1st semester exams	

#### **COURSE MATERIALS**

**Course:** PowerPoint presentation with photo and video illustrations.

**Tutorials:** Exercise series, applications, calculation models, and simulation modeling software.

#### **PREREQUISITES\***

The following courses are required to be taken:

##### **In L 3:**

- Building Equipment 1
- Building Equipment 2

##### **In Master 1:**

- EQUIPMENT 1: ELECTRICITY AND LIGHTING IN BUILDINGS
- EQUIPMENT 2: ACOUSTICS IN BUILDINGS

lectures and tutorials, lateness beyond 10 minutes is unacceptable. In tutorials, student attendance is required. Compliance with the instruction during lectures and tutorials is expected.

Homework and tests will be scheduled regularly throughout the semester, which will be included in the continuous assessment.

#### **Weekly schedule:**

1.5 hours of lectures and 1.5 hours of tutorials.

Attendance at tutorials is mandatory throughout the semester, in accordance with the provisions of Article 23 of Order 992.

#### **INSTRUCTIONS FOR INDIVIDUAL OR GROUP EXERCISES OR WORK**

The assignments to be submitted may take the form of group presentations. As for exercises, short digital applications, or other tasks, the students may complete individually.

#### **EVALUATION\***

The academic assessment and final grade for this subject will be calculated in accordance with official regulations (60% EF + 40% CC) by taking into account the average of a single exam at the end of the semester and the tutorial grade, weighted 60% and 40% respectively. Continuous assessments consist of 3 to 6 assignments. Assessments may be scheduled unannounced by the instructor. The average of these assessment grades taken during tutorial sessions, plus the attendance grade, will be used as the CC grade.

#### **INFORMATION ON ADDITIONAL SERVICES**

- Use of books and handouts in the faculty library,
- Use of high-level references online with guidance.

**Note:** In the event of a pandemic, remote courses are planned on the Microsoft Teams platform or Meet.

#### **CONTACT\***

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- Mr. BABA AHMED Ismain ([mediteranee13@yahoo.fr](mailto:mediteranee13@yahoo.fr)).
- Mr. MAACHOU Omar ([maachou\\_o@yahoo.fr](mailto:maachou_o@yahoo.fr));

\*Rubriques obligatoires